

WHAT IS CLAIMED IS:

Sub-B1 1.

A heat sink comprising:

a heat sink substrate having a vertical side wall except at one side thereof, the side being left open in one direction;

a plurality of fins vertically projecting from said heat sink substrate;

driving means at least a part of which is fixed to said heat sink substrate; and

a fan rotated by said driving means; characterized in that

height of an upper surface of said side wall is lower than that of an upper surface of said driving means relative to a bottom of said heat sink substrate.

2.

A heat sink comprising:

a heat sink substrate having a vertical side wall except at one side thereof, the side being left open in one direction;

a plurality of fins vertically projecting from said heat sink substrate;

driving means at least a part of which is fixed to said heat sink substrate;

a fan rotated by said driving means; and

a concave cover which is mounted on an upper surface of the side wall of said heat sink substrate and which has a side wall except at one side thereof, the side being left open in one direction; characterized in that

height of an upper surface of said side wall is lower than that of an upper surface of said driving means relative to a bottom of said heat sink substrate; and

the open side of said heat sink substrate is differently directed from the open side of said cover with respect to an rotating axis of said fan.

Sub-B23

A heat sink comprising:

a heat sink substrate having a vertical side wall except at one side thereof, the side being left open in one direction;

a plurality of fins vertically projecting from said heat sink substrate;

driving means at least a part of which is fixed to said heat sink substrate;

a fan rotated by said driving means; and

a plate which is mounted on upper surface of the side wall of said heat sink substrate and which has an opening;

characterized in that

height of an upper surface of said side wall is lower than that of an upper surface of said driving means relative to a bottom of said heat sink substrate.

4. A heat sink comprising:

a heat sink substrate having a vertical side wall except at one side thereof, the side being left open in one direction;

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a plurality of fins vertically projecting from said heat sink substrate;

driving means at least a part of which is fixed to said heat sink substrate;

a fan rotated by said driving means;

a plate which is mounted on an upper surface of the side wall of said heat sink substrate and which has an opening; and

a concave cover which is mounted on an upper surface of the side wall of said heat sink substrate and which has a side wall except at one side thereof, the side being open in one direction; characterized in that

height of an upper surface of said side wall is lower than height of an upper surface of said driving means relative to a bottom of said heat sink substrate and the open side of said heat sink substrate is differently directed from the open side of said cover with respect to a rotating axis of said fan.

5-5 A heat sink according to ~~claim 3 or 4~~,^{Claim 3} characterized in that the opening of the plate is so large as to allow the driving means to penetrate the plate ^{through said opening} but smaller in diameter than the fan.

6. A heat sink according to ~~claim 4 or 5~~,^{Claim 4} characterized in that the heat sink further comprises a duct for directing air flow at least to one of the open side of the heat sink substrate and the open side of the cover.

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Claim 1

A heat sink according to ~~any one of claims 1 to 5~~, characterized in that the fan has a shape of an axial fan.

8.

An electronic device comprising:

a substrate having a heat emitting element thereon;

a heat sink substrate mounted on said heat emitting element and having a vertical side wall except at one side thereof, the side being left open in one direction;

a plurality of fins vertically projecting from said heat sink substrate;

driving means at least a part of which is fixed to said heat sink substrate;

a fan rotated by said driving means;

a plate which is mounted on an upper surface of the side wall of said heat sink substrate and which has an opening; and

a concave cover which is mounted on an upper surface of the side wall of said heat sink substrate and which has a side wall except at one side thereof, the side being left open in one direction; characterized in that

height of an upper surface of said side wall is lower than that of an upper surface of said driving means relative to a bottom of said heat sink substrate and said heat sink substrate is mounted on said cover for cooling the heat emitting element with their open

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sides directed in different directions with respect to a rotating axis of said fan.

9.

An electronic device comprising:

a casing having an exhaust port;

a substrate which is accommodated in said casing and has a heat emitting element;

a heat sink substrate mounted on said heat emitting element and having a vertical side wall except at one side thereof, the side being left open in one direction;

a plurality of fins vertically projecting from said heat sink substrate;

driving means at least a part of which is fixed to said heat sink substrate;

a fan rotated by said driving means;

a plate which is mounted on an upper surface of the side wall of said heat sink substrate and which has an opening; and

a concave cover which is mounted on an upper surface of the side wall of said heat sink substrate and which has a side wall except at one side thereof, the side being left open in one direction; characterized in that

height of an upper surface of said side wall is lower than that of an upper surface of said driving means relative to a bottom of said heat sink substrate and said heat sink further comprises a duct for connecting the exhaust port of said casing and the open

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side of said heat sink substrate or the open side of
said cover.

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